MAXDATA Server PLATINUM 1600 IR

User's Manual

Contents

1 Setting up the System 7
Server Position 7
Connecting the System 8
Rear of Server System 8
Control Panel 9

2 Server System Features 11
Connector and Header Locations 12
Configuration Jumpers 13
Light Guided Diagnostics 14
RAID Support 15
Hardware Requirements 15
Processor 15
System Memory 15
Available memory modules 17
Memory Mirroring 17
Optional Hardware 17
Remote Management Module 17
Add-in I/O modules 17

3 Server Chassis Features 19
Component Identification 19
Internal Components 19
SAS/SATA Mid-Plane 20
Peripheral Devices 21

4 Hardware Installations and Upgrades 23
Before You Begin 23
Tools and Supplies Needed 23
System References 23
Removing and Installing the Chassis Cover 23
Removing and Installing the Front Bezel 24
Removing the Front Bezel 24
Installing the Front Bezel 24
Installing a SAS or SATA Hot-swap Hard Disk Drive 25
Removing a Hot-swap Hard Disk Drive 26
Removing and Installing the PCI Riser Assembly 27
Removing the PCI Riser Assembly 27
Installing the PCI Riser Assembly 27
Installing a PCI Add-in Card 28
Filling Empty Chassis Bays 28
Installing Memory 29
DIMM Blank Population 29
Installing DIMMs 29
Installing or Replacing the Processor 30
Installing the Processor 30
Installing the Heat Sink(s) 32
Removing a Processor 32
RJ45 Serial Port Configuration 33
Replacing the Backup Battery 34

5 Server Utilities 37
Using the BIOS Setup Utility 37
Starting Setup 37
If You Cannot Access Setup 37
Setup Menus 37
Clearing the Password 39
Recovering BIOS Defaults 39

6 Troubleshooting 41
LED Information 41

7 Technical Reference 43
Power Supply Specifications 43
Power Supply Input Voltages 43
Efficiency 43
Power Supply Output Voltages 43
System Environmental Specifications 43

8 Regulatory and Integration Information 45
Product Regulatory Compliance 45
Product Safety Compliance 45
Product EMC Compliance 45
Product Regulatory Compliance Markings 45
Product RoHS Compliance 45
Installation Precautions 45
Use Only for Intended Applications 46
Power and Electrical Warnings 46
Rack Mount Warnings 46

Figures

1. Server System Back 8
2. Control Panel 9
3. Server Board Connector and Component Locations 12
4. Configuration Jumpers 13
5. Light Guided Diagnostic LEDs 14
6. Diagram of DIMM configuration 15
7. Mapping of DIMM sockets 16
8. Chassis Components 19
9. Active SAS/SATA Mid-Plane Components 20
10. Optional Peripherals 21
11. Removing the Server System Cover 23
12. Removing the Front Bezel 24
13. Removing the Hot-swap Hard Drive Carrier from the Chassis 25
14. Installing a Hard Disk Drive into a Drive Carrier 26
15. Installing a Drive Assembly into the Chassis 26
16. Removing PCI Riser Assembly from the Server System 27
17. Installing a Full Height Add-In Card 28
18. Installing Memory 29
19. Lifting the Processor Socket Handle 30
20. Lifting the load plate 30
21. Removing protective covering from the load plate 31
22. Inserting the processor 31
23. Close and lock load plate 31
24. Installing Heat Sink (2U Heat Sink shown) 32
25. Changing the Serial Port Configuration 33
26. Replacing the Backup Battery 35

Tables

1. NIC LEDs 8
2. Control Panel Features 9
3. Server System Features 11
4. Keyboard Commands 38
5. LED Information 41
6. Efficiency of the power supply 43
7. Power Supply Output Capability 43
8. Environmental Specifications 43
9. Product Certification Markings 45

1 Setting up the System

Server Position

Please take note of the following criteria for creating a practical and safe workplace when setting up your computer:

⚠ The system can be used anywhere the temperature is suitable for people. However, rooms with humidity over 70%, and dusty or dirty areas are not appropriate. In addition, do not expose the server to any temperatures over +30 °C or under +10 °C.

⚠ Make sure that the cables connecting the server to peripheral devices are not tight.

⚠ Make sure that all power and connection cables are positioned so that they are not trip hazards.

⚠ When you save data to your server's hard disks or to a floppy disk, they are stored as magnetic information on the media. Make sure that they are not damaged by magnetic or electromagnetic fields.

⚠ Because the electronics in your computer can be damaged by jarring, no mechanical devices should be placed on the same surface as the server. This is especially important for impact printers whose vibrations could damage the hard disk.

⚠ Please take care to ensure a free air flow to the server at all times. Do not block the ventilation slots of the server case and particularly the power supplies. An insufficient air flow may damage the server and / or it's components.

⚠ ATTENTION

In order to fully separate the server from current, the power cord must be removed from the wall outlet.

Connecting the System

Rear of Server System

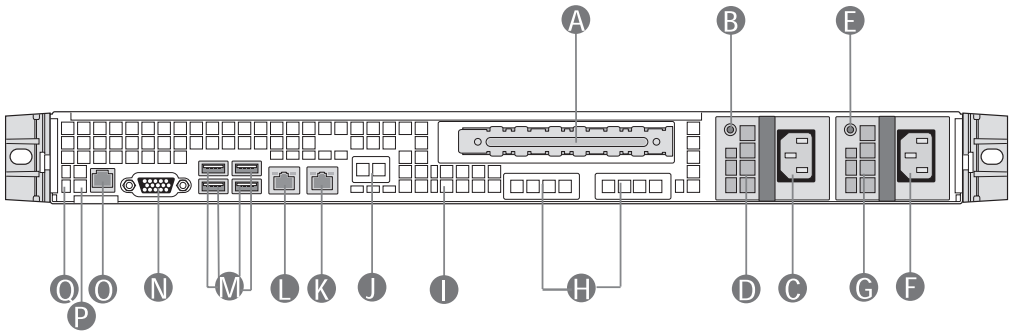

Figure 1. Server System Back

A. Full-height PCI add-in card slot
B. Supply module #1 status LED
C. Supply module #1 AC receptacle
D. Supply module #1
E. Supply module #2 status LED
F. Supply module #2 AC receptacle
G. Supply module #2 (optional)
H. I/O module (optional)
I. POST code diagnostics LEDs
J. Intel® Remote Management Module NIC (optional)
K. NIC 2
L. NIC 1
M. Four USB ports
N. Video
O. RJ-45 serial B connector
P. System status LED
Q. System identification LED

Table 1. NIC LEDs

LED Color	LED State	Description
Left LED	Off	No network connection
	Solid Amber	Network connection in place
	Blinking Amber	Transmit/receive activity
Right LED	Off	10 Mbps connection (if left LED is on or blinking)
	Solid Amber	100 Mbps connection
	Solid Green	1000 Mbps connection

Control Panel

The diagram below shows the features available on the mini control panel.

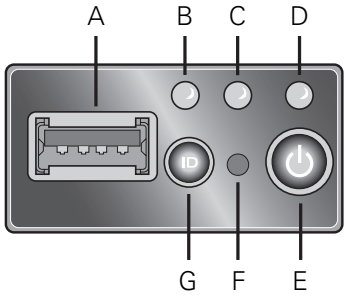

Figure 2. Control Panel

Table 2. Control Panel Features

Callout	Feature	Function
A.	USB 2.0 Port	Allows you to attach a USB component to the front of the system.
B.	System Identification LED	Solid blue indicates system identification is active. No light indicates system identification is not activated.
C.	System Status LED	Solid green indicates normal operation. Blinking green indicates degraded performance. Solid amber indicates a critical or non-recoverable condition. Blinking amber indicates a non-critical condition. No light indicates POST is running or the system is off.
D.	Power/Sleep LED	Continuous green light indicates the system has power applied to it. Blinking green indicates the system is in S1 sleep state. No light indicates the power is off / is in ACPI S4 or S5 state.
E.	Power/Sleep Button	Powers on/off the system. Puts the system in an ACPI sleep state.
F.	NMI Button	Puts the server in a halt-state for diagnostic purposes.
G.	System Identification Button	Turns on/off the system identification LED.

2 Server System Features

This chapter briefly describes the main features of the MAXDATA PLATINUM Server System. It provides a list of the server system features and diagrams showing the location of important components and connections on the server system.

Table 3 summarizes the major features of the server system.

Table 3. Server System Features

Feature	Description
Dimensions	• 43.2 mm high • 430 mm wide • 654.4 mm deep • 21 kg - max chassis weight
Server board	Intel® S5520UR
Processor	One or two Intel® Xeon® 5500 processors with a thermal design power (TDP) of up to 95 W
System memory	• 12 DIMM slots, 6 per processor, distributed over three memory channels • Up to 96 GB system memory • 800/1066/1333 MT/s ECC registered (RDIMM) or unbuffered (UDIMM) DDR3 memory • No mixing of RDIMMs and UDIMMs
Chipset	• Intel® 5520 Chipset IOH • Intel® 82801Jx I/O Controller Hub (ICH10R)
Peripheral Interfaces	External connections: • One DB-15 graphics port One RJ45 serial B port • Two RJ45 network ports for 10/100/1000 Mbps • Four USB 2.0 ports (back panel) • One USB 2.0 port (front) Internal connections: • One USB connector for two USB 2.0 ports • One DH10 connector for serial A port • Six SATA II ports • Two ports for optional I/O extensions (Dual 1 Gbit NIC/10 Gbit NIC/SAS) • One port for an optional remote management module
Graphics	On-board ServerEngines LLC Pilot II Controller with integrated 2D video controller, 64 MB DDR2 memory, 8 MB of which is graphics memory
LAN	One Intel® 82575EB controller with two ports for 10/100/1000 Mbps Ethernet LAN
Expansion capabilities	One PCIe 2.0 x16 riser card slot (full-height and full-length)
Hard disk drives	Up to eight 2.5" SATA/SAS hot-swap disk drives
Peripheral devices	Slimline floppy drive for optical SATA drive
Power supply	One or two redundant power supplies with 650 W each
Fans	• Five 56 mm dual-rotor fans (9+1 fan redundancy) • One non-redundant fan in each power supply
Server management	IPMI 2.0 compatible Light Guided Diagnostics

Connector and Header Locations

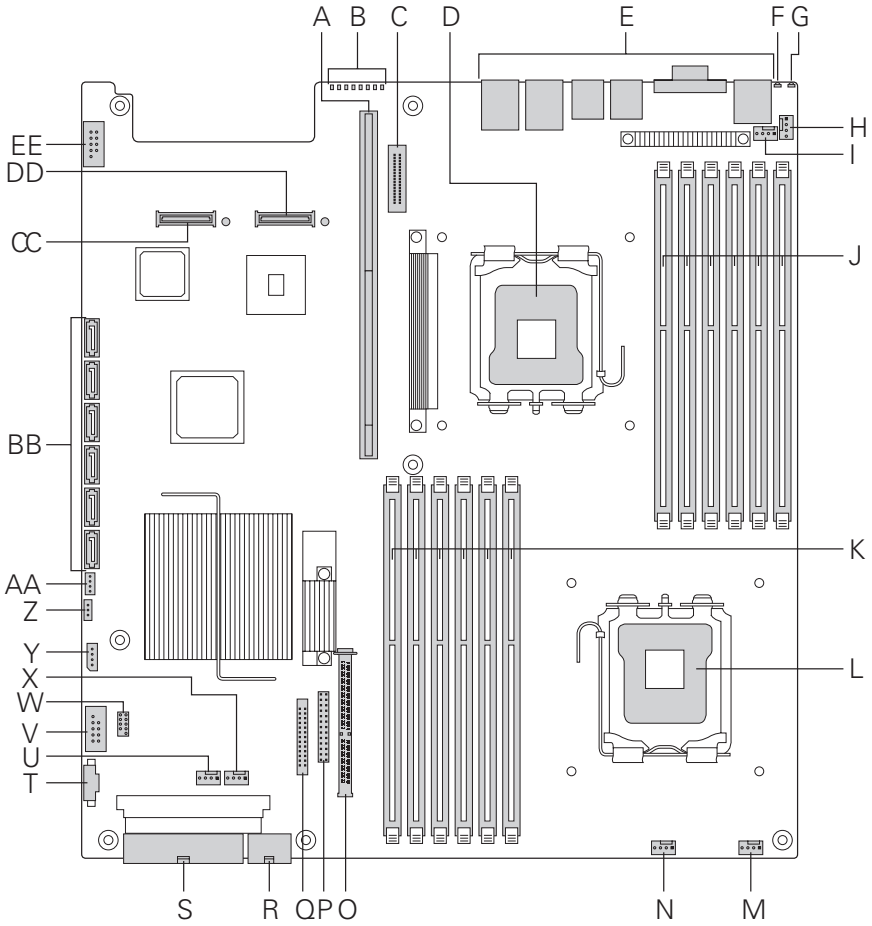

Figure 3. Server Board Connector and Component Locations

A. 280-pin Intel® Adaptive Riser Card slot
B. POST code LEDs
C. Intel® RMM3 header
D. Processor 1
E. Back panel I/O
F. ID LED
G. System status LED
H. Fan header
I. Fan header
J. Processor 1 DIMM slots
K. Processor 2 DIMM slots
L. Processor 2
M. Fan header
N. Fan header
O. Bridge board connector
P. Front panel connector
Q. Fan board connector
R. 2×4 power connector
S. Main power connector
T. Power supply SMBus connector
U. Fan header
V. USB header
W. Solid state drive header
X. Fan header
Y. LCP IPMB header
Z. OEM IPMB header
AA. SGPIO header
BB. SATA connectors
CC. I/O module mezzanine connector 2
DD. I/O module mezzanine connector 1
EE. Serial port B header

Configuration Jumpers

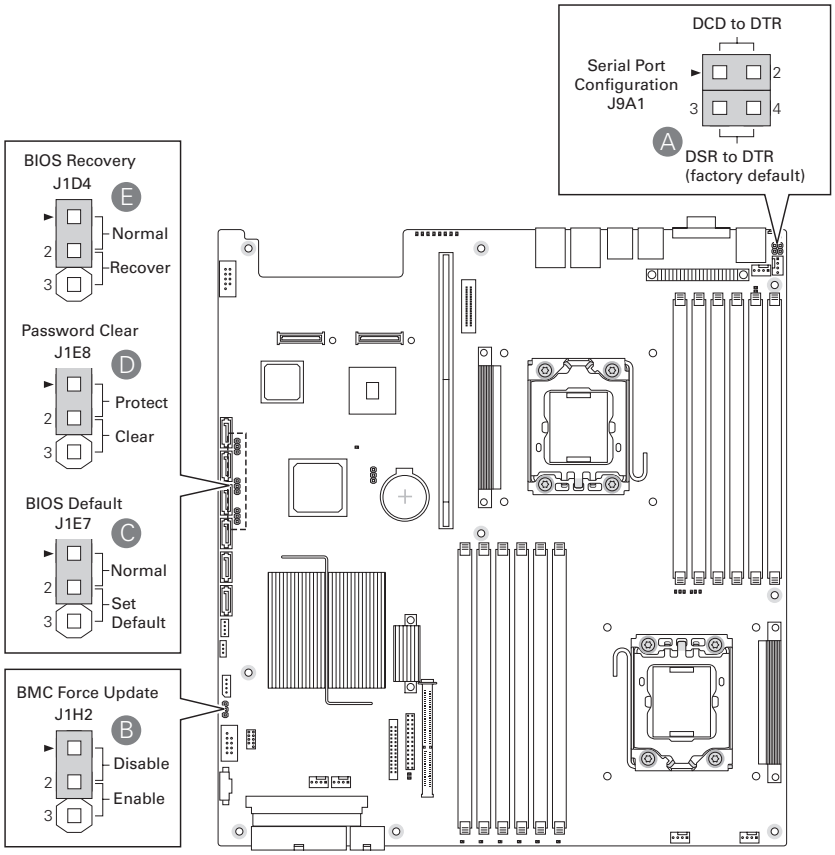

Figure 4. Configuration Jumpers

Light Guided Diagnostics

The server board contains diagnostic LEDs to help you identify failed and failing components, and to help you identify the server from among several servers. Except for the ID LED, the status LED, and the 5V standby LED, the LEDs turn on (amber) only if a failure occurs.

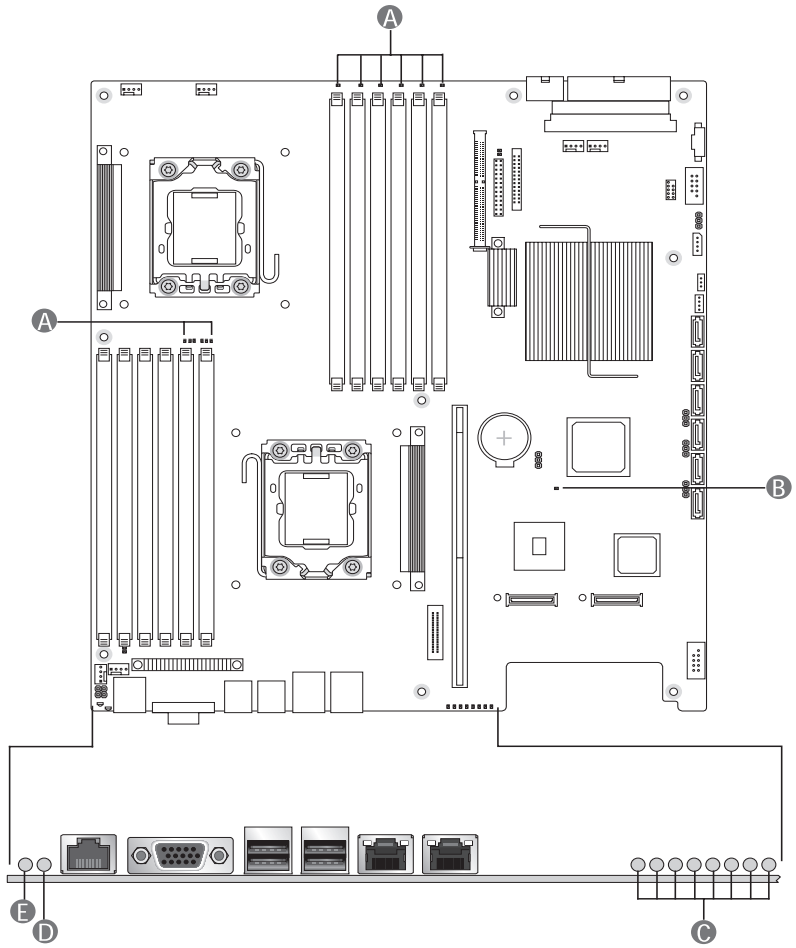

Figure 5. Light Guided Diagnostic LEDs

A.	DIMM fault LEDs	The DIMM fault LED identifies faults in the assigned memory module
B.	5-volt standby LED	The LED is labelled "5VSB_LED". It lights up when the server is supplied with power and the 5-volt standby circuit of the mainboard is active.
C.	POST code diagnostic LEDs	Display BIOS-POST codes during system startup
D.	System Identification LED	This LED has the same function as the LED on the system front panel (see Table 2, page 9).
E.	System Status LED	This LED displays the same status as the LED on the system front panel (see Table 2, page 9).

RAID Support

The setup of a SAS-RAID is supported via the active midplane. The midplane is equipped with a LSI SAS1078 3 Gbit/s controller chip.

If a RAID activation key and a mini DIMM registered DDR2 with 512 MB for the RAID cache are installed, a powerful SAS-RAID solution is available for RAID 0, 1, 5, 10, 50 or 60. The DIMM option is necessary for the RAID activation key.

If you have installed the RAID activation key, press <Ctrl>+<G> to start the Intel® BIOS Console 2 utility. Start the Configuration Wizard to configure arrays and logical drives.

The LSI MPT-SAS-BIOS can be configured without an installed RAID activation key using the LSI Logic Configuration utility. When prompted, press <Ctrl>+<C> to start the utility. RAID 1 (Integrated Mirroring, IM) is supported in this case.

Hardware Requirements

Processor

One or two Intel® Xeon® 5500 processors need to be installed.

System Memory

The server board provides six memory channels, each with two slots. Channels A to C with DIMM A1, A2, B1, B2, C1 and C2 are assigned to processor 1. Channels D to F with DIMM D1, D2, E1, E2, F1 and F2 are assigned to processor 2. The channels D, E and F can only be used when processor 2 has been configured.

If two processors are configured, both processors can then access the entire memory via Intel® QuickPath Interconnect (Intel® QPI).

Within a channel, DIMM 1 must be configured before DIMM 2 can be installed.

CPU socket 1						CPU socket 2					
Channel A		Channel B		Channel C		Channel D		Channel E		Channel F	
A1	A2	B1	B2	C1	C2	D1	D2	E1	E2	F1	F2

Figure 6. Diagram of DIMM configuration

The DIMM configuration is displayed in the following diagram.

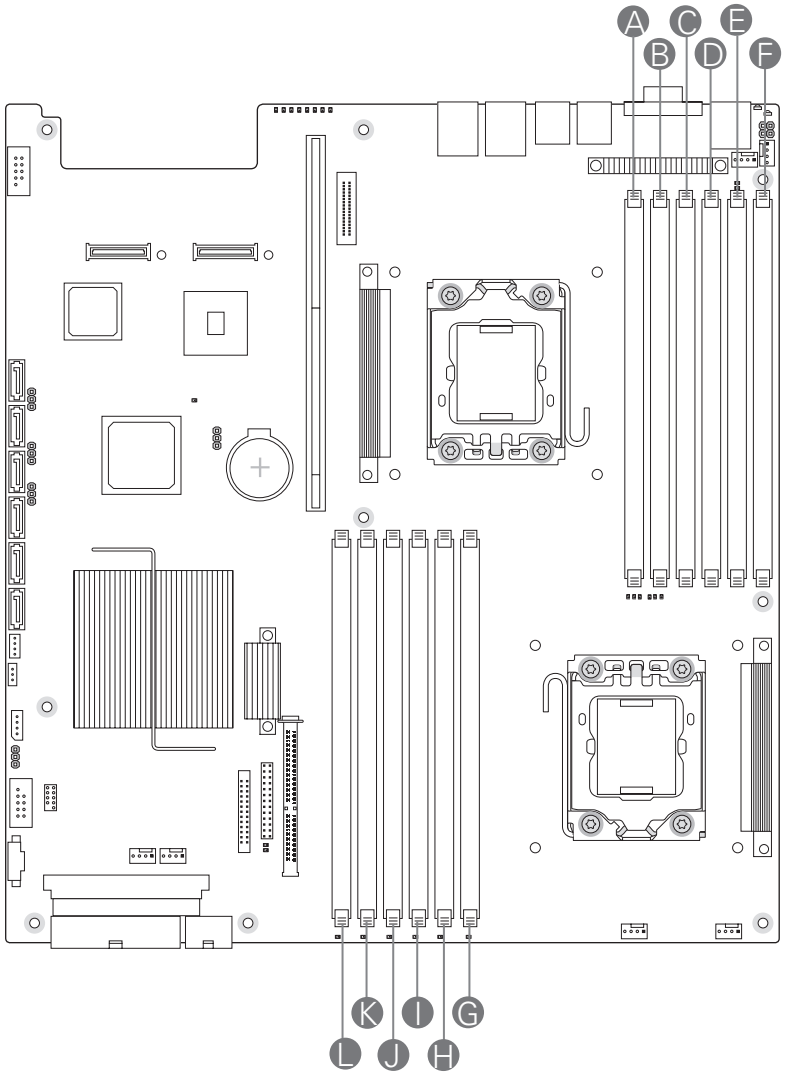

Figure 7. Mapping of DIMM sockets

A.	Channel A, DIMM A2	**G.**	Channel D, DIMM D2
B.	Channel A, DIMM A1 (blue)	**H.**	Channel D, DIMM D1 (blue)
C.	Channel B, DIMM B2	**I.**	Channel E, DIMM E2
D.	Channel B, DIMM B1 (blue)	**J.**	Channel E, DIMM E1 (blue)
E.	Channel C, DIMM C2	**K.**	Channel F, DIMM F2
F.	Channel C, DIMM C1 (blue)	**L.**	Channel F, DIMM F1 (blue)

Available memory modules

- 1.5 V DDR3 DIMMs, registered (RDIMMs) or unbuffered (UDIMMs, with or without ECC)
- Mixing of RDIMMs and UDIMMs is not permitted.
- If at least one UDIMM is installed without ECC, the entire memory is operated without ECC.
- The following DIMM and DRAM technologies are supported:
- RDIMMs:

  - Single-, dual- and quad-rank

  - x4 or x8 DRAM with 1 Gbit and 2 Gbit technology; 2 GB or 4 GB RDIMMs based on 2 Gbit DRAM are not supported.

  - DDR3 1333 (only single- and dual-rank), DDR3 1066 and DDR3 800
- UDIMMs:

  - Single- and dual-rank

  - x8 DRAM with 1 Gbit or 2 Gbit technology

  - DDR3 1333, DDR3 1066 and DDR3 800

Memory Mirroring

The chipset supports memory mirroring. Memory mirroring is a concept devised to avoid loss of data if one DIMM fails.

The maximum useable memory amounts to half of the installed memory in a mirrored system.

Memory mirroring is achieved by mirroring the first two memory channels of each processor. The third channel (C or F) remains unused.

For memory mirroring, the DIMMs need to have the same capacity and technology across all channels.

Optional Hardware

Remote Management Module

The remote management module provides extended functions for server management. A dedicated network card is provided for remote access.

Add-in I/O modules

The server board provides two I/O add-in slots (mezzanine port 1 and 2). Each of these slots uses a PCIe 2.0 connection.

Optional I/O modules for this purpose are

- Dual-port Gigabit Ethernet I/O module (uses one mezzanine port)
- Quad-port Gigabit Ethernet I/O module (uses both mezzanine ports)
- Dual-port 10 Gigabit Ethernet I/O module (uses both mezzanine ports)
- SAS I/O module with four external ports (uses one mezzanine port; external SAS port: SFF-8470)

This module enables extension without populating a PCIe standard slot.

3 Server Chassis Features

This chapter provides diagrams showing the location of important components and connections on the server chassis.

Component Identification

Internal Components

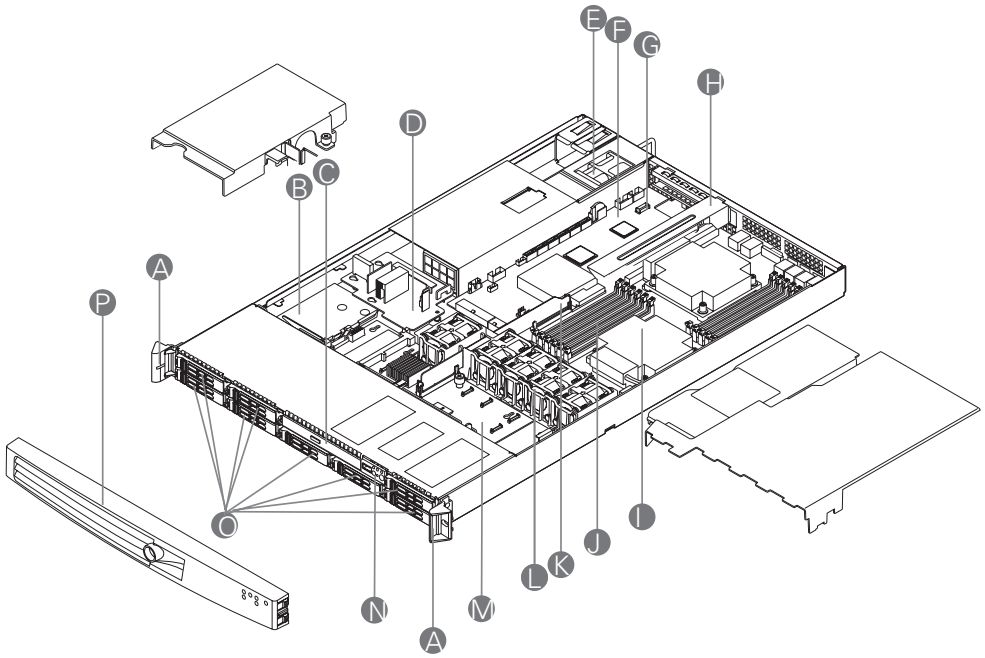

Figure 8. Chassis Components

A. Rack handles
B. Battery pack (optional)
C. Slimline optical drive bay
D. Power distribution board
E. Power supply modules
F. Server board
G. Intel® I/O expansion module connector (optional)
H. Riser card assembly
I. Processor and heatsink
J. System memory
K. Bridge board
L. System fan bank
M. Midplane board (active version shown)
N. Mini control panel
O. Hard drive bays
P. Front bezel (optional; standard control panel shown)

SAS/SATA Mid-Plane

The mid-plane serves as the primary interface between the server board, the hot-swap backplane, and the control panel.

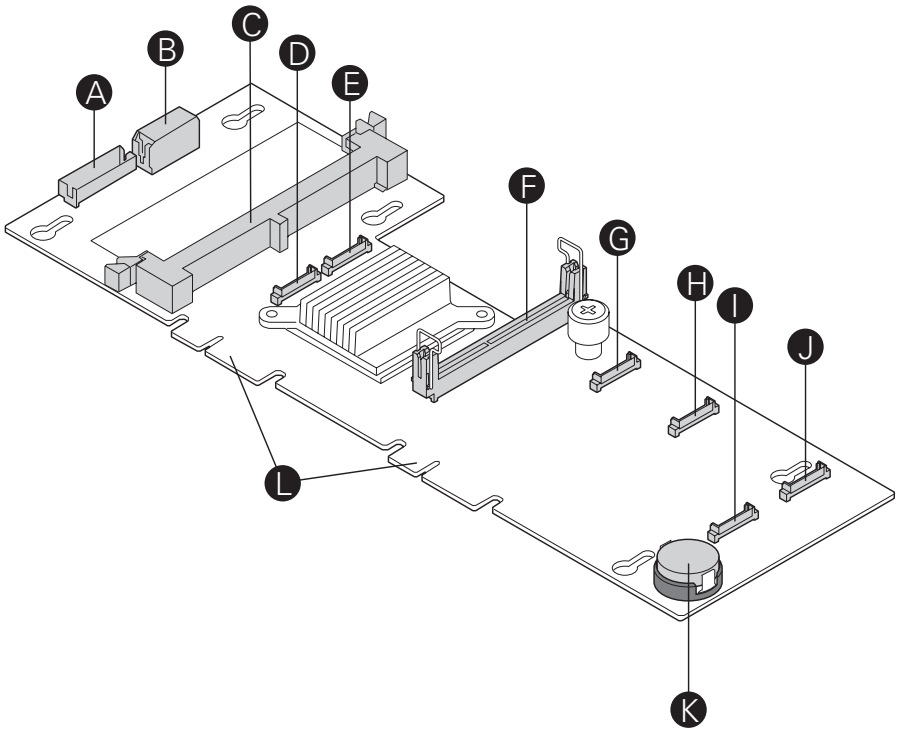

Figure 9. Active SAS/SATA Mid-Plane Components

A. Optional RAID cache battery backup connection
B. Power connector
C. Mini-DIMM connector
D. Fan 6 connector
E. Fan 5 connector
F. Bridge board connector
G. Fan 4 connector
H. Fan 3 connector
I. Fan 1 connector
J. Fan 2 connector
K. RAID activation key connector
L. Backplane connector

Peripheral Devices

The server system provides locations and hardware for installing hard drives and DVD drives. The following figure shows the available options.

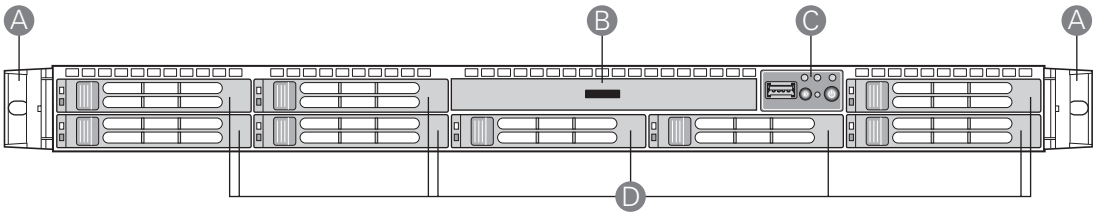

Figure 10. Optional Peripherals

- **A.** Rack Handles
- **B.** Slimline Optical Drive
- **C.** Mini Control Panel Bay
- **D.** Hard drive bays (optional drive carrier for 7th/8th HDD)

4 Hardware Installations and Upgrades

Before You Begin

Before working with your server product, pay close attention to the safety instructions at the beginning of this manual.

Tools and Supplies Needed

- Phillips (cross head) screwdriver (#1 bit and #2 bit)
- Needle-nosed pliers
- Antistatic wrist strap and conductive foam pad (recommended)

System References

All references to left, right, front, top, and bottom assume the reader is facing the front of the chassis as it would be positioned for normal operation.

Removing and Installing the Chassis Cover

The MAXDATA PLATINUM 1600 IR Server Chassis must be operated with the top cover in place to ensure proper cooling. You will need to remove the top cover to add or replace components inside of the chassis. Before removing the top cover, power down the server and unplug all peripheral devices and the AC power cable.

NOTE

A nonskid surface or a stop behind the chassis may be needed to prevent the chassis from sliding on your work surface.

1. Observe the safety and ESD precautions at the beginning of this book.
2. Turn off all peripheral devices connected to the server. Turn off the server.
3. Disconnect the AC power cord.
4. Remove the shipping screw if it is installed. See letter "A" in the figure below.
5. While holding in the blue button at the top of the chassis in (see letter "B"), slide the top cover back until it stops (See letter "C").
6. Insert your finger in the notch (see letter "D") and lift the cover upward to remove it.

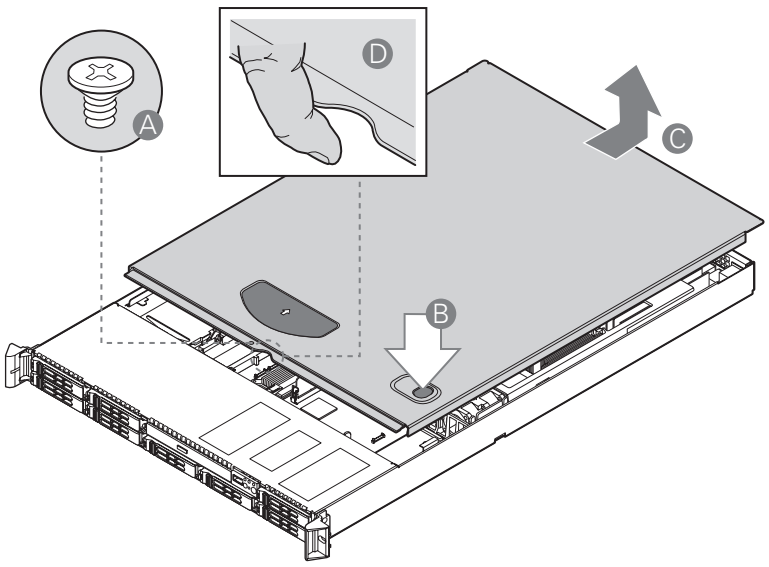

Figure 11. Removing the Server System Cover

Removing and Installing the Front Bezel

The front bezel is available as optional accessory for the MAXDATA PLATINUM 1600 IR.

Removing the Front Bezel

1. Unlock the bezel.
2. Pull the bezel out from the chassis.

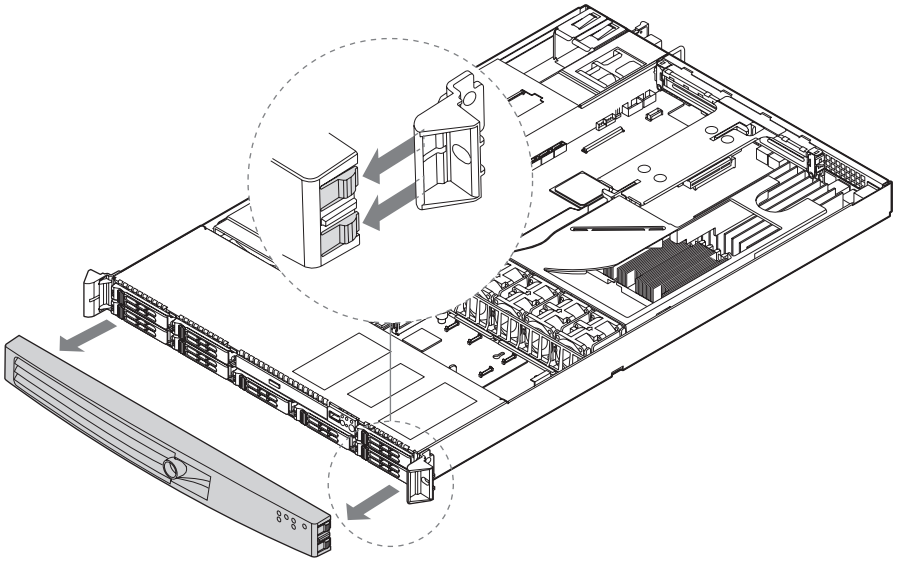

Figure 12. Removing the Front Bezel

Installing the Front Bezel

1. At each end of the bezel, line up the center notch on the bezel with the center guide on the rack handles.
2. Push the bezel onto the front of the chassis until it clicks into place.

Installing a SAS or SATA Hot-swap Hard Disk Drive

1. Remove the front bezel if it is installed.
2. Press in on the green latch at the front of the hard drive carrier. See letter "A" in the figure below.
3. Pull out on the black lever and slide the carrier from the chassis. See letter "B" in the figure below.

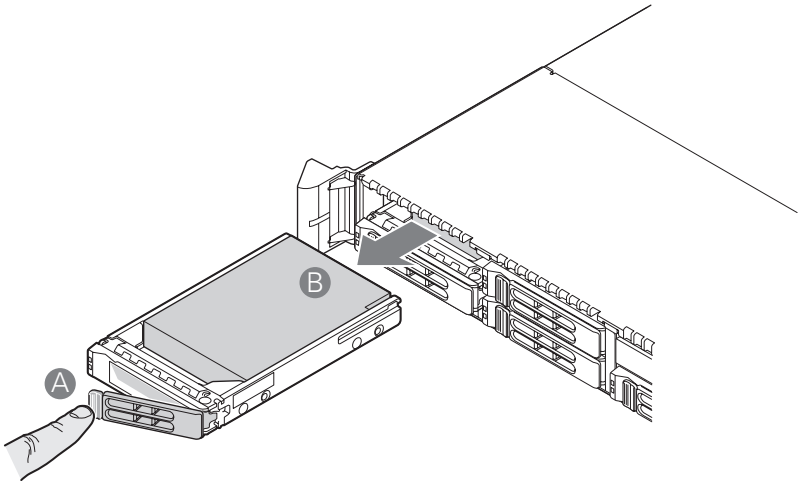

Figure 13. Removing the Hot-swap Hard Drive Carrier from the Chassis

4. Remove the four screws that attach the plastic retention device or the previously installed hard drive to the drive carrier. Two screws are at each side of the retention device or the hard drive. Store the plastic retention device for future use.
5. Remove the hard drive from its wrapper and place it on an antistatic surface.
6. Set any jumpers and/or switches on the drive according to the drive manufacturer's instructions.
7. With the drive circuit-side down, position the connector end of the drive so that it is facing the rear of the drive carrier.
8. Align the holes in the drive to the holes in the drive carrier and attach it to the carrier with the screws that were attached to the plastic retention device.

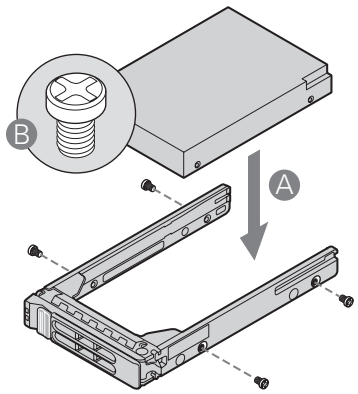

Figure 14. Installing a Hard Disk Drive into a Drive Carrier

9. With the black lever in the fully open position, slide the drive assembly into the chassis. The green latch at the front of the drive carrier must be to the left. Do not push on the black drive carrier lever until the lever begins to close by itself.
10. When the black drive carrier lever begins to close by itself, push on it to lock the drive assembly into place.

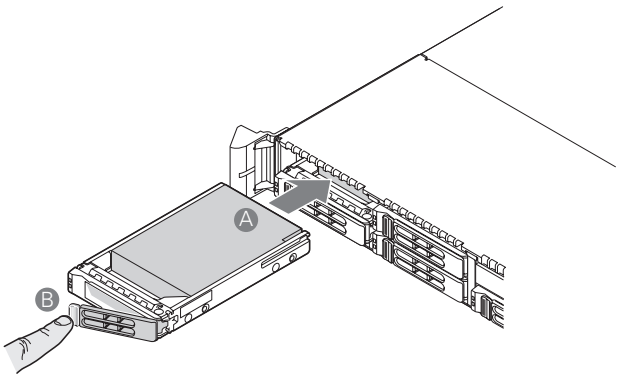

Figure 15. Installing a Drive Assembly into the Chassis

Removing a Hot-swap Hard Disk Drive

1. Remove the front bezel if it is installed.
2. Press in on the green latch at the front of the hard drive carrier.
3. Pull out on the black lever to slide the carrier from the chassis.
4. Remove the four screws that attach the hard drive to the drive carrier. Lift the drive from the carrier. Store the drive in an anti-static bag.
5. If you are not installing a new drive, place the plastic retention device into the drive carrier, using the four screws you removed from the hard drive.
6. With the black lever in the fully open position, slide the drive carrier into the chassis. The green latch must be to the left. Do not push on the black lever until the lever begins to close by itself.
7. When the black lever begins to close by itself, push on it to lock the drive carrier into place.

NOTE

For proper airflow, the hard drive carrier must be replaced in the chassis, even if no hard drive is installed in it.

Removing and Installing the PCI Riser Assembly

Always operate your server chassis with the PCI riser assembly in place. The riser assembly is required for proper airflow within the chassis. You will need to remove the PCI riser assembly from the chassis to replace the PCI riser connectors, or to add or remove a PCI add-in card.

Removing the PCI Riser Assembly

Use the following instructions to remove the PCI riser assembly from the chassis.

1. Observe the safety and ESD precautions at the beginning of this book.
2. Power down the server and unplug all peripheral devices and the AC power cable.
3. Remove the chassis cover.
4. Disconnect any cables attached to any installed add-in cards.
5. Grasp both riser latches with thumb and forefinger, and pull up to release the riser assembly from the chassis. See the figure below.

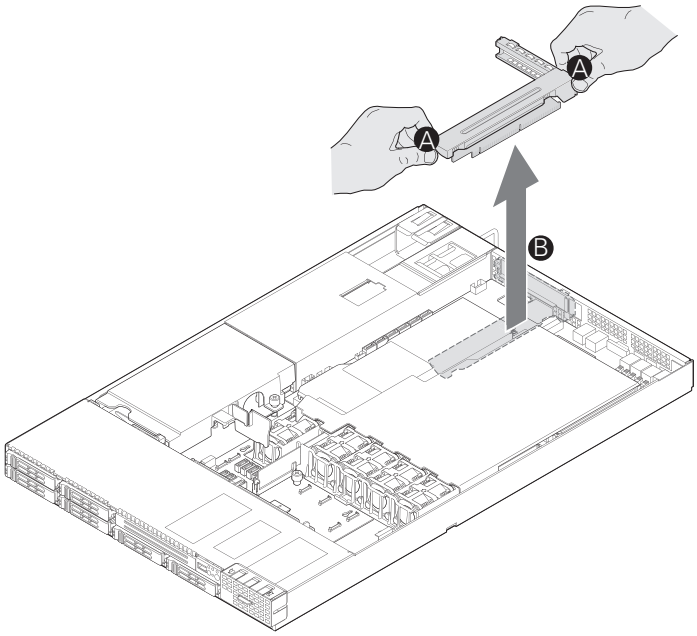

Figure 16. Removing PCI Riser Assembly from the Server System

Installing the PCI Riser Assembly

1. Observe the safety and ESD precautions at the beginning of this book.
2. Power down the server and unplug all peripheral devices and the AC power cable.
3. Remove the chassis cover.
4. Install any necessary add-in cards into the PCI riser assembly.
5. Install any cables onto add in cards that require them. See your add-in card documentation for information and add-in card requirements.
6. Set the riser assembly straight down, matching the hooks in the back of the riser assembly to the notches in the rear of the chassis.
7. Press firmly to push the riser into the slots on the server board.
8. Install the chassis cover.

Installing a PCI Add-in Card

1. Observe the safety and ESD precautions at the beginning of this book.
2. Power down the server and unplug all peripheral devices and the AC power cable.
3. Remove the chassis cover.
4. Remove the PCI riser assembly.
5. Open the rear retention clip by pushing the blue slide upward and rotating clip to the fully open position (see letter "A").
6. Remove the filler panel from the selected add-in card slot (see letter "B").
7. Insert add-in card until it seats in riser card connector (see letter "C").

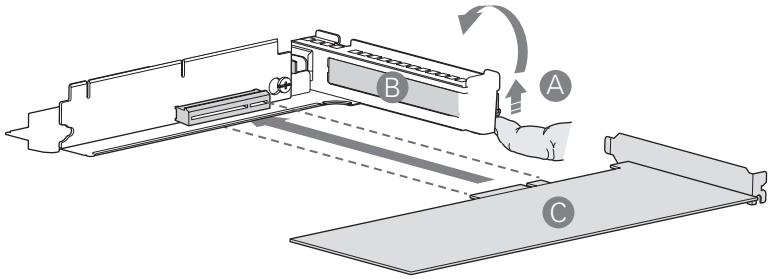

Figure 17. Installing a Full Height Add-In Card

8. Close the retention clip.

Note

Make sure that all empty add-in card slots have filler panels installed.

9. Install the PCI riser assembly into the server system.
10. Install the server system cover.
11. Plug all peripheral devices and the AC power cable(s) into the server.

Filling Empty Chassis Bays

A filler panel, drive blank, or empty drive carrier must be installed into any empty drive bay.

Installing Memory

The DIMMs are labelled as DIMM_A1 to DIMM_F2 on the board.

Begin populating your memory with DIMM_A1. First add a DIMM to the first socket of each of the following memory channels before installing DIMMs in the second socket of a channel. Distribute the memory evenly over both processors for systems with two processors. Please refer to Chapter 2 for more detailed information on the system memory.

DIMM Blank Population

DIMM Blanks are required in order to maintain adequate thermal levels and airflow. The requirements are as follows:

- One CPU installed - All CPU 1 DIMM slots (channels A, B, and C) must either have a DIMM or a DIMM blank installed. You may leave the CPU 2 DIMM slots empty or store extra DIMM blanks in the blue DIMM slots.
- Two CPUs installed - All Blue DIMM slots (A1, B1, C1, D1, E1, F1) must either have a DIMM or a DIMM blank installed. You may store extra DIMM blanks in any unused CPU1 DIMM slots.

Installing DIMMs

To install DIMMs, follow these steps:

1. Observe the safety and ESD precautions at the beginning of this book.
2. Turn off all peripheral devices connected to the server. Turn off the server.
3. Disconnect the AC power cord from the server.
4. Remove the chassis cover and locate the DIMM sockets.

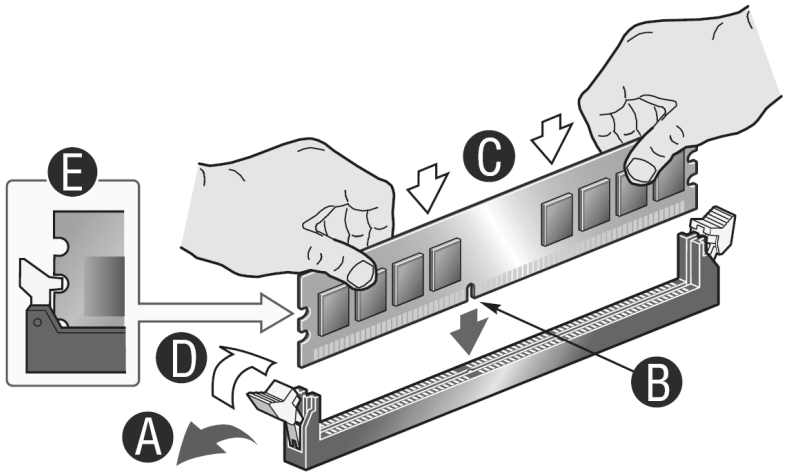

Figure 18. Installing Memory

5. Make sure the clips at either end of the DIMM socket(s) are pushed outward to the open position.
6. Holding the DIMM by the edges, remove it from its anti-static package.
7. Position the DIMM above the socket. Align the small notch in the bottom edge of the DIMM with the key in the socket.
8. Insert the bottom edge of the DIMM into the socket.
9. When the DIMM is inserted, carefully push straight down on the top edge of the DIMM until the retaining clips snap into place. Make sure the clips are firmly in place.
10. Replace the chassis cover and reconnect the AC power cord.

Installing or Replacing the Processor

CAUTIONS

Processor must be appropriate: You may damage the server board if you install a processor that is inappropriate for your server.

ESD and handling processors: Reduce the risk of electrostatic discharge (ESD) damage to the processor by doing the following: (1) Touch the metal chassis before touching the processor or server board. Keep part of your body in contact with the metal chassis to dissipate the static charge while handling the processor. (2) Avoid moving around unnecessarily.

Installing the Processor

To install a processor, follow these instructions:

1. Observe the safety and ESD precautions at the beginning of this book.
2. Turn off all peripheral devices connected to the server. Turn off the server.
3. Disconnect the AC power cord from the server.
4. Remove the chassis cover.
5. Locate the processor socket and raise the socket handle completely (see Figure 19).

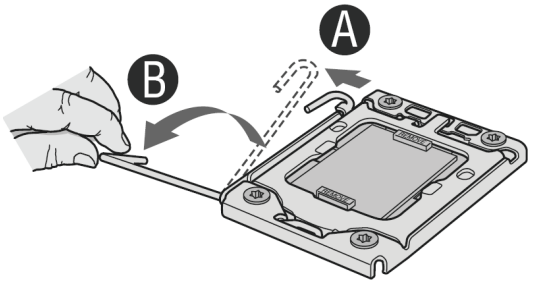

Figure 19. Lifting the Processor Socket Handle

6. Raise the CPU load plate (see Figure 20).

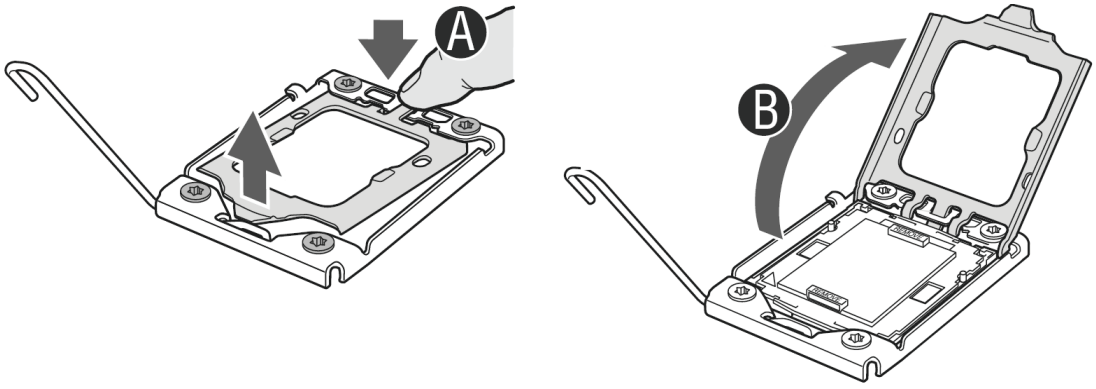

Figure 20. Lifting the load plate

7. If there is a protective covering on the load plate, remove it and store it for later use.

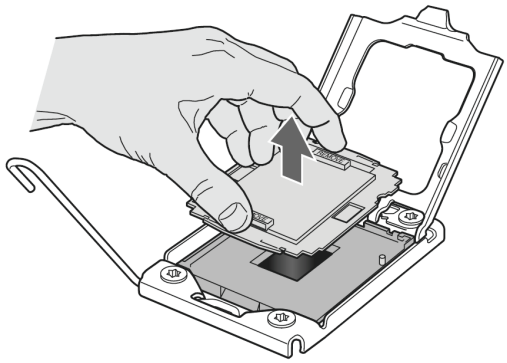

Figure 21. Removing protective covering from the load plate

8. Take the processor out of the box and remove the protective shipping covering.
9. Align the processor with the socket in such a way that both notches match up with the processor socket pins. Gently insert the processor into the socket.

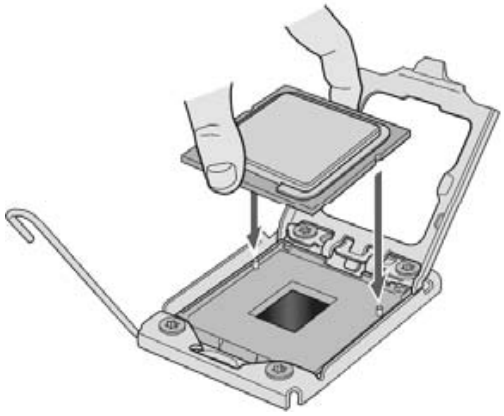

Figure 22. Inserting the processor

10. Replace the load plate.
11. Close the socket lever. Push down on the lever and, while holding it down, push it towards the centre of the processor until it clicks into place under the hook on the processor socket.

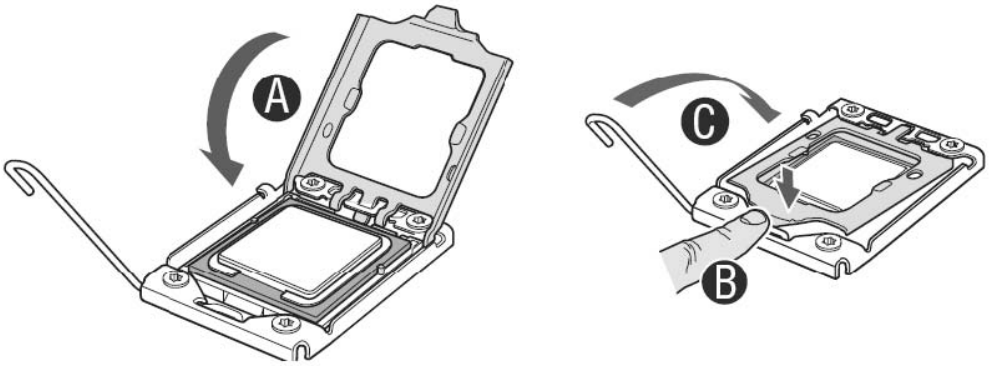

Figure 23. Close and lock load plate

12. Attach the heat sink (see next page).

Installing the Heat Sink(s)

The heat sink has Thermal Interface Material (TIM) located on the bottom of it. Use caution when you unpack the heat sink so you do not damage the TIM.

1. Set the heat sink over the processor, lining up the four captive screws with the four posts surrounding the processor.
2. Loosely screw in the captive screws on the heat sink corners in a diagonal manner. Do not fully tighten one screw before tightening another.
3. Gradually and equally tighten each captive screw until all screws are tight.
4. Reinstall and reconnect any parts you removed or disconnected to reach the processor sockets.
5. Replace the server's cover and reconnect the AC power cord.

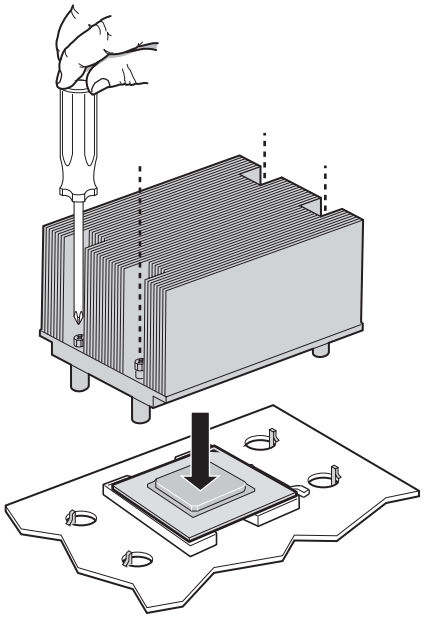

Figure 24. Installing Heat Sink (2U Heat Sink shown)

Removing a Processor

1. Observe the safety and ESD precautions at the beginning of this book.
2. Turn off all peripheral devices connected to the server. Turn off the server.
3. Remove the AC power cord from the server.
4. Remove the chassis cover.
5. Loosen the four captive screws on the corners of the heat sink.
6. Twist the heat sink slightly to break the seal between the heat sink and the processor.
7. Lift the heat sink from the processor. If it does not pull up easily, twist the heat sink again. Do not force the heat sink from the processor. Doing so could damage the processor.
8. Lift the processor lever.
9. Raise te CPU load plate.
10. Remove the processor.
11. If installing a replacement processor, see "Installing the Processor." Otherwise, install the protective socket cover over the empty processor socket and reinstall the chassis cover.

RJ45 Serial Port Configuration

The RJ45 serial port connector can be configured to support either a DSR signal or a DCD signal. As the server board is shipped, it is configured to support DSR signals. To change the configuration to support DCD signals a jumper on the board must be changed. Use the following instructions to configure your server board to support DCD signals.

1. Observe the safety and ESD precautions at the beginning of this book.
2. Turn off all peripheral devices connected to the server. Turn off the server.
3. Disconnect the AC power cord from the server.
4. Remove the server's cover.
5. Locate the jumper block for the serial port. See figure 25.
6. Move the jumper from the default position covering pins 3 and 4 to cover pins 1 and 2.

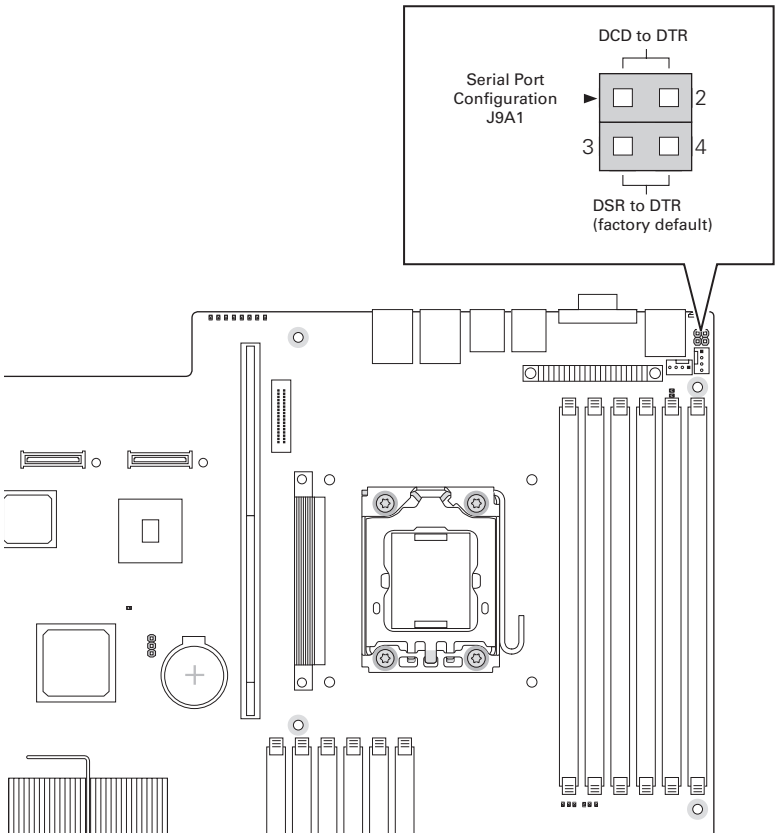

Figure 25. Changing the Serial Port Configuration

Replacing the Backup Battery

The lithium battery on the server board powers the RTC for up to 10 years in the absence of power. When the battery starts to weaken, it loses voltage, and the server settings stored in CMOS RAM in the RTC (for example, the date and time) may be wrong. Contact your customer service representative or dealer for a list of approved devices.

⚠ **WARNING**

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.

⚠ **WARNUNG**

Wenn eine ungeeignete Batterie eingesetzt wird oder die Batterie falsch eingesetzt wird, besteht Explosionsgefahr. Ersetzen Sie verbrauchte Batterien nur durch Batterien gleichen oder äquivalenten Typs, der vom Hersteller empfohlen wurde. Entsorgen Sie die verbrauchte Batterie entsprechend den Anweisungen des Herstellers.

⚠ **AVERTISSEMENT**

Danger d'explosion en cas de remplacement incorrect de la pile. Remplacez-la uniquement par une pile du même type ou d'un type équivalent recommandé par le fabricant. Mettez au rebut les piles usagées en vous conformant aux instructions du fabricant.

⚠ **OSTRZEŻENIE**

Nieprawidłowa wymiana baterii grozi eksplozją. Wymieniać tylko na taki sam lub równoważny typ, zalecany przez producenta. Zużyte baterie utylizować zgodnie z instrukcjami producenta.

⚠ **ADVARSEL!**

Lithiumbatteri - Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

⚠ **ADVARSEL**

Lithiumbatteri - Eksplosjonsfare. Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten. Brukt batteri returneres apparatleverandøren.

⚠ **VARNING**

Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

⚠ **VAROITUS**

Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

1. Observe the safety and ESD precautions.
2. Turn off all peripheral devices connected to the server. Turn off the server.
3. Disconnect the AC power cord(s) from the server.
4. Remove the server's cover and locate the battery. See the documentation that accompanied your server chassis for instructions on removing the server's cover.
5. Insert the tip of a small flat bladed screwdriver, or an equivalent, under the tab in the plastic retainer. Gently push down on the screwdriver to lift the battery.
6. Remove the battery from its socket.

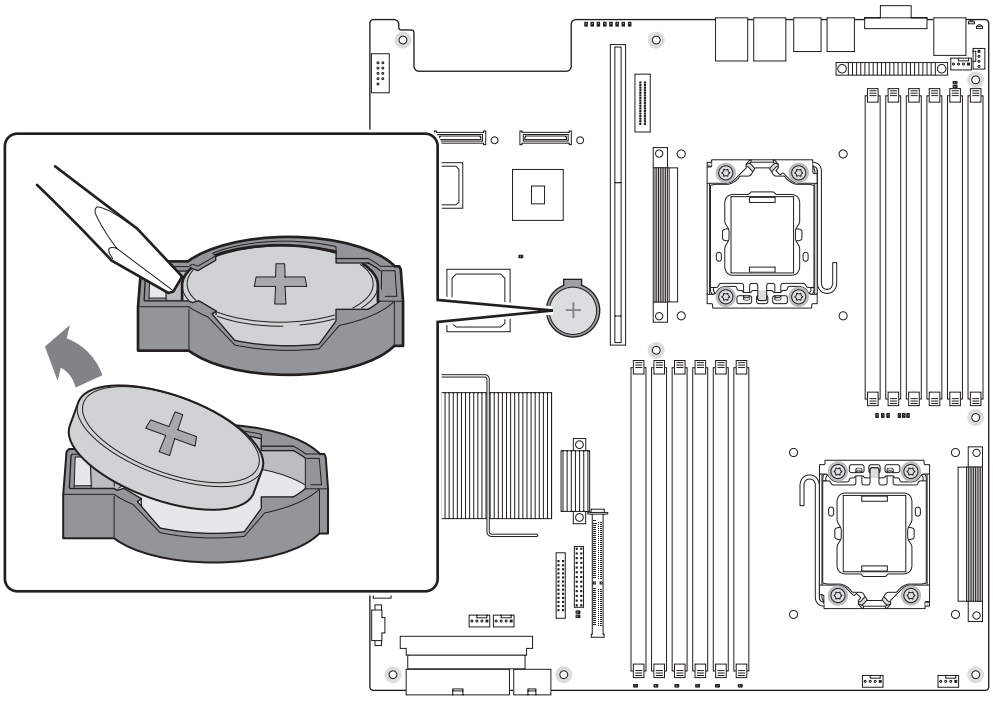

Figure 26. Replacing the Backup Battery

7. Dispose of the battery according to local ordinance.
8. Remove the new lithium battery from its package, and, being careful to observe the correct polarity, insert it in the battery socket.
9. Close the chassis.
10. Run Setup to restore the configuration settings to the RTC.

5 Server Utilities

Using the BIOS Setup Utility

This section describes the BIOS Setup Utility options, which is used to change server configuration defaults.

Starting Setup

You can enter and start BIOS Setup under several conditions:

- When you turn on the server, after POST completes the memory test
- When you have moved the CMOS jumper on the server board to the "Clear CMOS" position (enabled)

In the two conditions listed above, during the Power On Self Test (POST), you will see this prompt:

Press <F2> to enter SETUP

In a third condition, when CMOS/NVRAM has been corrupted, you will see other prompts but not the <F2> prompt:

Warning: CMOS checksum invalid

Warning: CMOS time and date not set

In this condition, the BIOS will load default values for CMOS and attempt to boot.

If You Cannot Access Setup

If you are not able to access BIOS Setup, you might need to clear the CMOS memory. For instructions on clearing the CMOS, see "Clearing the CMOS".

Setup Menus

Each BIOS Setup menu page contains a number of features. Except for those features that are provided only to display automatically configured information, each feature is associated with a value field that contains user-selectable parameters. These parameters can be changed if the user has adequate security rights. If a value cannot be changed for any reason, the feature's value field is inaccessible.

Table 4 describes the keyboard commands you can use in the BIOS Setup menus.

Table 4. Keyboard Commands

Press	Description
<F1>	Help - Pressing F1 on any menu invokes the general Help window.
← →	The left and right arrow keys are used to move between the major menu pages. The keys have no affect if a submenu or pick list is displayed.
↑	Select Item up - The up arrow is used to select the previous value in a menu item's option list, or a value field pick list. Pressing the Enter key activates the selected item.
↓	Select Item down - The down arrow is used to select the next value in a menu item's option list, or a value field pick list. Pressing the Enter key activates the selected item.
F5/-	Change Value - The minus key or the F5 function key is used to change the value of the current item to the previous value. This key scrolls through the values in the associated pick list without displaying the full list.
F6/+	Change Value - The plus key or the F6 function key is used to change the value of the current menu item to the next value. This key scrolls through the values in the associated pick list without displaying the full list. On 106-key Japanese keyboards, the plus key has a different scan code than the plus key on the other keyboard, but it has the same effect.
<Enter>	Execute Command - The Enter key is used to activate submenus when the selected feature is a submenu, or to display a pick list if a selected feature has a value field, or to select a sub-field for multi-valued features like time and date. If a pick list is displayed, the Enter key will undo the pick list, and allow another selection in the parent menu.
<Esc>	Exit - The ESC key provides a mechanism for backing out of any field. This key will undo the pressing of the Enter key. When the ESC key is pressed while editing any field or selecting features of a menu, the parent menu is re-entered. When the ESC key is pressed in any submenu, the parent menu is re-entered. When the ESC key is pressed in any major menu, the exit confirmation window is displayed and the user is asked whether changes can be discarded.
<F9>	Setup Defaults - Pressing F9 causes the following to appear: Setup Confirmation Load default configuration now? [Yes] [No] If "Yes" is selected and the Enter key is pressed, all Setup fields are set to their default values. If "No" is selected and the Enter key is pressed, or if the ESC key is pressed, the user is returned to where they were before F9 was pressed without affecting any existing field values.
<F10>	Save and Exit - Pressing F10 causes the following message to appear: Setup Confirmation Save Configuration changes and exit now? [Yes] [No] If "Yes" is selected and the Enter key is pressed, all changes are saved and Setup is exited. If "No" is selected and the Enter key is pressed, or the ESC key is pressed, the user is returned to where they were before F10 was pressed without affecting any existing values.

Clearing the Password

If the user or administrator password(s) is lost or forgotten, moving the password clear jumper into the "clear" position clears both passwords. The password clear jumper must be restored to its original position before a new password(s) can be set. The password clear jumper is shown in figure 6.

1. Power down the server. Do not unplug the power cord.
2. Open the server chassis.
3. Move the jumper from the default operating position (covering pins 1 and 2) to the Password Clear position (covering pins 2 and 3).
4. Close the server chassis.
5. Power up the server and wait 10 seconds.
6. Power down the server.
7. Open the server chassis and move the jumper back to the default position (covering pins 1 and 2).
8. Close the server chassis.
9. Power up the server.

Recovering BIOS Defaults

If you are not able to access the BIOS setup screens, the BIOS Defaults jumper will need to be used to reset the system configuration. The BIOS Defaults jumper is shown in figure 6.

1. Power down the system and unplug the power cord.
2. Open the server chassis.
3. Move the jumper from the default operating position (covering pins 1 and 2) to the reset/clear position (covering pins 2 and 3).
4. Wait 5 seconds.
5. Move the jumper back to the default position (covering pins 1 and 2).
6. Close the server chassis.
7. Power up the server.

6 Troubleshooting

This chapter helps you identify and solve problems that might occur while you are using the system.

LED Information

The MAXDATA PLATINUM Server Board includes LEDs that can aid in troubleshooting your system. A table of these LEDs with a description of their use is listed below.

Table 5. LED Information

LED Name	Function	Location	LED Color	Notes
Power	Indicates system power is on or off	Front control panel	Green	Off = Power is off or in sleep state S5 On = Power is on or in sleep stats S0
ID	Aid in server identification from the back panel	Front control panel and board rear left corner	Blue	Press ID LED button or use Server Management software to turn the LED on and off.
System Status	Visible fault warning	Control panel and board rear right corner	Green or Amber	Green = No Fault Green blinking = degraded condition Amber blinking = non-critical error Amber = critical or nonrecoverable error

7 Technical Reference

Power Supply Specifications

Power Supply Input Voltages

- 100-127 V at 50/60 Hz; 8 A max.
- 200-240 V at 50/60 Hz; 4 A max.

Efficiency

The following table shows the efficiency of the power supply with an input voltage of 230 volts.

Table 6. Efficiency of the power supply

Load (% of maximum)	20%	50%	100%
Efficiency	81%	85%	81%

Power Supply Output Voltages

The table below lists the total wattage available from the power subsystem for each voltage. Ensure that your loads do not exceed the combined total wattage of 650 Watts.

Table 7. Power Supply Output Capability

Voltage	**Maximum Current**
+3.3 V	18 A
+5.0 V	30 A
+5 V Standby	3 A
+12.0 V (4 rails)	54 A (20 A for one rail)
–12.0 V	2.0 A

CAUTION

The expansion slots on the server board are rated for no more than 25 Watts for any one slot. The average current usage per slot should not exceed 13 Watts.

System Environmental Specifications

Table 8. Environmental Specifications

Temperature	**Non-operating**	–40 °C to 70 °C.
	Operating	10 °C to 30 °C; derated 0.5 °C for every 1000 ft (305 m) to a maximum of 10,000 ft.
Humidity	**Non-operating**	90 % relative humidity (non-condensing) at 30 °C.
Acoustic noise		7 Bels in sound power for a typical office ambient temperature (18–24 °C). **The selection of peripherals may change the noise level.**

8 Regulatory and Integration Information

Product Regulatory Compliance

Product Safety Compliance

The server complies with the following safety requirements:

- EN 60950 (European Union)
- IEC 60950 (International)
- CE – Low Voltage Directive (73/23/EEC) (European Union)

Product EMC Compliance

The server has been tested and verified to comply with the following electromagnetical compatibility (EMC) regulations:

- EN 55022 (Class A) – Radiated & Conducted Emissions (European Union)
- EN 55024 (Immunity) (European Union)
- CE – EMC Directive (89/336/EEC) (European Union)

Product Regulatory Compliance Markings

This product is marked with the following Product Certification Markings:

Table 9. Product Certification Markings

CE Mark	

Product RoHS Compliance

Restriction of Hazardous Substances: This server system is compliant to European Directive 2002/95/EC (RoHS).

Installation Precautions

Observe all warnings and cautions in the installation instructions.

To avoid injury, be careful of:

- Sharp pins on connectors
- Sharp pins on printed circuit assemblies
- Rough edges and sharp corners on the chassis
- Hot components (like processors, voltage regulators, and heat sinks)
- Damage to wires that could cause a short circuit

Refer computer servicing to qualified technical personnel.

Use Only for Intended Applications

This server was evaluated as Information Technology Equipment (I.T.E.) for use in offices, homes, schools, computer rooms, and similar locations. The suitability of this product for other applications or environments, (such as medical, industrial, alarm systems, test equipment, etc.) may require further evaluation.

Power and Electrical Warnings

CAUTION

The power supply in this product contains no user-serviceable parts. Do not open the power supply. Hazardous voltage, current and energy levels are present inside the power supply. Return to manufacturer for servicing.

When replacing a hot-plug power supply, unplug the power cord to the power supply being replaced before removing it from the server.

To avoid risk of electric shock, turn off the server and disconnect the power cord, telecommunications systems, networks, and modems attached to the server before opening it.

The power supply cord(s) is/are the main disconnect device to AC power. The socket outlet(s) must be near the equipment and readily accessible for disconnection.

The power supply cord(s) must be plugged into socket-outlet(s) that is/are provided with a suitable earth ground.

Rack Mount Warnings

The equipment rack must be anchored to an unmovable support to prevent it from tipping when a server or piece of equipment is extended from it. The equipment rack must be installed according to the rack manufacturer's instructions.

Install equipment in the rack from the bottom up, with the heaviest equipment at the bottom of the rack.

Extend only one piece of equipment from the rack at a time.

You are responsible for installing a main power disconnect for the entire rack unit. This main disconnect must be readily accessible, and it must be labeled as controlling power to the entire unit, not just to the server(s).

To avoid risk of potential electric shock, a proper safety ground must be implemented for the rack and each piece of equipment installed in it.